11 April, 2001

MODIS sensor Working Group (MsWG) Summary

Attendance: Bob Evans, Chris Moeller, Eric Vermote, Gary Toller, Jack Xiong, Jim Young, Mike Roberto, Roger Drake, Steve Platnick, Wayne Esaias, Gwyn Fireman
Guest: Eugene Waluschka, GSFC, 301-286-2616

Bill Barnes is on travel; Jack Xiong moderated this discussion.

Scheduled Items

SD illumination on VIS FPA:

Eugene Waluschka explained the memo he recently circulated regarding VIS FPA ray distribution. Rays originating from a dummy plane ("pre-fold mirror") between the scan and fold mirror, perpendicular to the optical axis, were verified to propagate to the FPA as expected when initial direction is random or in directional, parallel bundles.

However, when rays originate in a few discrete directions, the ray distribution on the FPA was non-uniform. In particular, the distribution of rays in the cross-track (detector) direction shows a bimodal distribution superficially similar to observed detector variation in the Band 2 m1 calibration coefficient.

Any such systematic variation would be automatically included in the m1 term, but detector changes could be better characterized if systematic variations were corrected.

Action 0104-15: Compare m1 along-track variation with optical modeling results, especially for Band 2.

Band 5 Gain Change:

Jack presented plots showing that the Band 5 gain change was exactly as targeted; scaling crosstalk correction to the new gain eliminated subframe differences. Remaining saturation was confined to tropical clouds. Steve Platnick and MCST independently verified that striping was unaffected by the gain change.

All present science team members agreed that the gain change should be made permanent.

Action 0104-16: Arrange for the Band 5 gain change to be made permanent.

RSB Degradation Implementation:

Points clarified:

- The SDSM degradation report will be available early next week, with ratios plotted as a function of SD exposure time. More frequent SD measurements were made early in the mission
- Error bars plotted are derived from propagation of random measurement errors.
- SDSM SD-view and sun-view ratios wrt Detector 9 appear to increase with time since D9 is degrading faster than other detectors.

Concerns:

- Does SDSM detector 9 degradation imply that responsivity is decreasing as a function of wavelength?
- Could the filters and mirrors be contributing to a changing wavelength response?
- If the SDSM filter is changing, is it possible that we are no longer sampling the expected wavelength?

Alternate Spaceview Subtraction:

MCST and SBRS are looking into an alternate method of spaceview subtraction. Instead of subtracting the spaceview average for the current scan, the average for the previous or following scan will be subtracted in an attempt to reduce the effects of mirror-side correlated noise. Algorithm logic is being developed to handle DCR changes. Miami will send a list of granules to test the new algorithm on.

Around the Table

Esaias:

Waiting for SAFARI data processed with time-dependent m1 LUT.

SBRS:

Looking at FM-1 thermal vacuum tests for evidence of a thermal sink affecting PC bands. Examining slope over 100 frames in the EV sector shows 10 to 20 DN change for Bands 35 and 36. The SMIR heater appears to work better. Thermal averaging may diminish the observed effect; the thermal sink could show up as a 20% variation in RVS.

Xiong:

The VDET/ITWK sweep for day 47 has been lost. The day 54 test data is missing the first two sets, but the rest of the data is available. SBRS needs a VDET/ITWK sweep at the current electronics configuration.

Action 0104-17 Get Bill Barnes' approval for another VDET/ITWK sweep.

Vermote:

Observes a quick change in polarization angle near nadir, as does Evans. Miami models and corrects this effect as Rayleigh scattering.

Evans:

Q: How can the nadir pixel be identified?
A: There is nothing in the L1B product to empirically identify the nadir pixel. Precise spacecraft pointing information is found in the geolocation product (MOD03); the minimum of the SensorZenith SDS for each scan and 1-km detector will correspond to the nadir pixel (usually at frame 677).

Moeller:

Asked for a recap of recent work on Band 26 striping.
Q: Could the SST difference in 11-12 micron bands be due to overcorrection of the Band 31 to 32 leak?
A: MCST has looked into that; it appears that is not the case.

Platnick:

Q: Has the next SRCA test for SWIR striping and crosstalk study been scheduled?
A: It will take place the week of April 16.

compiled by G. Fireman 16 April, 2001